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DIRECTORATE OF INTELLIGENCE

The SALT I Agreements and
Future Soviet Weapons Programs:

A Framework for Analyzing Soviet Decisionmaking

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CENTRAL INTELLIGENCE AGENCY Directorate of Intelligence October 1972

WORKING PAPER

The SALT I Agreements and Future
Soviet Weapons Programs: A Framework for
Analyzing Soviet Decisionmaking

### Introduction

During the negotiation and ratification of the SALT I agreements, a wide spectrum of attitudes arose about likely Soviet behavior within an arms control environment, centering on the question whether the Soviet Union would adhere to both the terms and the spirit of the agreements.

At one end of the spectrum are those who assign a low probability to Soviet compliance with international agreements, and fear that the Soviets have entered into SALT with a preconceived plan to gain advantage by secret noncompliance. At the other end of the spectrum are those who assume an intense desire on the part of the Soviet leadership to fulfill not only the terms, but also the spirit, of the agreements. About midway between these extremes are those who believe that, although the Soviets will probably refrain from strictly prohibited conduct, they will pursue vigorously every opportunity not specifically limited by the SALT I agreements, and will squeeze the maximum out of those 'gray areas' of nonlimited activity which represent contentious issues not resolved through negotiation.

None of these premises is useful as a basis for analyzing Soviet behavior within the confines of an

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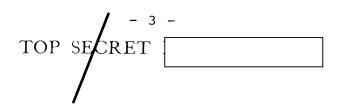
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arms limitation environment. The first premise ignores the link between SALT and the larger Soviet policy of detente with the West. The second premise, on the other hand, is naive in presuming that the Soviets are motivated more by altruistic concerns than by self-interest. The third premise is more realistic, but does not account for a number of factors, such as bureaucratic pressures, which may come into play when decisions on strategic systems are made.

This working paper develops a conceptual framework for analyzing how Soviet decisionmaking on military policy could be affected by SALT. It distinguishes four types of activity relevant to the SALT I agreements--prohibited, 'gray area,' sanctioned, and non-limited--and constructs a four-zone model to suggest how future decisions on Soviet forces and research and development programs might be made. Hypotheses are then developed on how Soviet behavior could be influenced within this new SALT framework, depending on where in the model decisions are taken.

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### The Moscow Agreements

In a juridical sense, the two SALT I agreements signed in Moscow on 26 May 1972 define a range of conduct within which Soviet decisions on strategic forces will now be made. This range covers (1) activities mutually agreed on as prohibited or regulated, (2) contentious 'gray areas' of activity not specifically limited, and (3) sanctioned activities including specific available options.

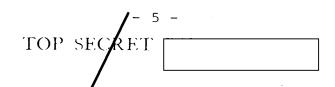
### Prohibited and Regulated Activity

### The ABM Treaty

The general effects of the ABM treaty have been to establish quantitative and functional symmetry between Soviet and US ABM systems, and to prohibit the deployment of thick, nationwide ABM defenses.

To prevent the emergence of such area defenses, the treaty limits each side to only two ABM deployment areas, each having a radius of 150 km (93 statute miles) and separated by no less than 1,300 km (808 miles). One of these areas is centered on the national capital, while the other is for the defense of an area containing ICBMs. Within each of those two areas, no more than 100 ABM launchers and interceptors can be deployed, and ABM radars will be controlled quantitatively and qualitatively to prevent their growth into a base which could be converted to an area defense in the event the treaty is abrogated. Limitations have also been placed on the power-aperture product of certain other large phased-array radars (OLPARs) to restrict their use in an ABM role.

The ABM treaty also places certain constraints on ABM research and development activity including a limitation on the number of test range launchers and prohibitions on SAM upgrading and on the development of ABM interceptors which are sea-based, air-based, space-based, or land-mobile or which employ more than one independently guided warhead.

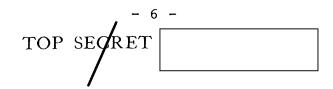


Summary of Soviet ICBM Launchers Operational and Under Construction, 1 October 1972

	Deployment mode	Operational launchers	Launchers under construction
Second genera- tion systems		209	
Total soft SS-7	62 sites,* each with 2 adjacent pads	134 124	
SS-8	5 sites, each with 2 adjacent pads	10	
Total hard	-	75	
SS-7	22 sites, each with 3 adjacent silos	66	
SS-8	3 sites, each with 3 adjacent silos	9	
Third genera-	Dispersed, hardened silos	1,198	
tion systems SS-9	48 groups, each with 6 silos	288	
SS-11 at 10 ICBM com- plexes	85 groups, each with 10 silos	850	
SS-13	6 groups, each with 10 silos	60	
SS-lls at Derazhnya and Pervomaysk com- plexes	12 groups, each with 10 silos	120	
New type silos At Derazhnya			<u>91</u>
and Pervo- maysk (probably SS	silos 5-11 mod 3 initially)		66
At 5 SS-9 complexes (system unk	5 groups, each with 5 silos		25

Total ICBM launchers, operational and under construction 1,618

<sup>\*</sup> Thirteen of the 62 SS-7 soft sites are at a reduced state of readiness, and at 8 of these 13 sites permanent facilities are being dismantled.



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### The Interim Offensive Agreement

The five-year interim agreement limiting strategic offensive weapons freezes further expansion in the numbers of ICBM launchers and places ceilings on the deployment of nuclear ballistic missile submarines and SLBM launchers. The replacement provisions in the agreement's protocol may eventually result in reductions in the Soviet SS-7 and SS-8 force.

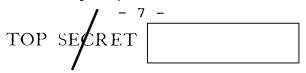
ICBMs. Under the provisions of the freeze, the Soviet ICBM force is limited to the number of ICBM launchers operational or under construction as of 1 July 1972. The Soviet ICBM force currently numbers 1,618 deployed launchers, of which 1,527 are presently operational. (See table at left.)

Within this inventory, qualitative improvements are allowed through the modernization of launch facilities and replacement of obsolescent systems, with the following provisos:

- -- Under Article II, the parties have agreed not to convert land-based launchers for "light" ICBMs (a missile about the size of the SS-11) or for ICBMs of older types deployed prior to 1964 (SS-7s, SS-8s, and Titans) into land-based launchers for "heavy" ICBMs of types deployed after 1964 (the SS-9 or its equivalent).
- -- Any increases in silo dimensions which occur in the process of modernization may not exceed 10 to 15 percent of the silo's original dimensions.

SLBMs. The protocol to the interim agreement established a baseline\* of Soviet ballistic missile submarines

\* The baseline agreed to was 740 launch tubes, which includes 710 SLBMs on Y-class submarines and 30 SLBMs on H-class submarines. Thus, when the nuclear-powered submarine containing the 741st launch tube begins sea trials, the Soviets must start to dismantle or destroy an equivalent number of older ICBM or SLBM launchers. This point could be reached as early as the first half of 1975. (This projection assumes that the 30 SLBM launchers on the nine H-class remain operational, that all future Y-class units started will be the 12-launcher lengthened variant, that each new Y-class will be under construction about two years before beginning sea trials, and that the construction program continues uninterrupted at its recent average of seven Y-class submarines per year.)



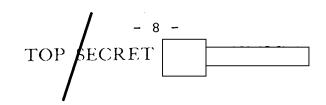
and launch tubes. It also permits the Soviets to continue producing and deploying modern ballistic missile submarines beyond this baseline and up to a ceiling of 62 units with 950 SLBM launchers. Beginning with the 741st launcher on these submarines, however, the protocol requires that the Soviets dismantle or destroy an equivalent number of SS-7 and SS-8 launchers, SLBM launchers on the older H-class submarines, or modern SLBM launchers on G-class submarines. Destruction or dismantling must have begun by the time the new submarine begins its sea trials.

The older, diesel-powered G-class submarines are not affected by the agreement. The launchers carried by these units are also outside the agreement unless they are modernized (that is, equipped to carry the SS-N-6, the SS-NX-8 or a new long-range naval missile). Should launchers for any modern SLBMs be installed on G-class units, they would be counted within the 950 ceiling and, if above the 740 baseline, must be accompanied by corresponding reductions in older ICBM or SLBM launchers.

### Contentious 'Gray Areas' of Activity

Whereas the SALT agreements have been directed at a reasonably well understood range of prohibited conduct, no agreement was reached on mobile ICBMs or definitions of "light" and "heavy" missiles. Although outside the scope of the direct controls established by the accords, these are contentious questions which carry a potential risk to the viability of the agreements.

Mobile ICBMs. The Soviets took a position against including mobile ICBMs in the offensive agreement, ostensibly because of its limited duration. The US agreed to defer the question of limiting operational land-mobile ICBM launchers until the subsequent negotiations on more complete offensive limitations, but the delegation stated unilaterally on 20 May 1972 that the US "would consider the deployment of operational land-mobile ICBM launchers during the period of the interim



agreement as inconsistent with the objectives of that agreement." The motives behind Soviet resistance on this issue are unclear. At the Moscow summit meeting, Brezhnev said that the USSR would not "build" mobile ICBMs, but he may have been referring only to the deployment of such systems.

Volumetric Constraints. Another issue not resolved was the definition of "heavy" missiles. Although the Soviets have agreed not to convert "light" ICBMs into "heavy" ICBMs in the process of modernization, they have refused to acknowledge any definitions for light and heavy missiles, insisting that national means of verification are adequate to differentiate between them. There is an informal understanding that a heavy missile equates to the size of an SS-9 (220 cubic meters) and a light missile approximates the size of an SS-11 (65 to 69 cubic meters). The problem arises in the area between these two limits: at what point does an ICBM cease to be light and become heavy?

In a unilateral statement made the day the agreements were signed in Moscow, the US delegation went on record as considering "any ICBM having a volume significantly greater than that of the largest light ICBM now in operation on either side to be a heavy ICBM" (emphasis added). Given the agreed understanding of significant increases in silo dimensions to be any exceeding 10 to 15 percent, the above statement implies that the US would consider any Soviet missiles with a volume 15 percent greater than the SS-11 to be in the heavy category.



### Sanctioned Activity

Apart from the strict limitations on certain categories of offensive and defensive deployments, the SALT agreements have presented Soviet planners with a number of explicit options they can exercise, among which are:

- -- deploying an ABM system in defense of an area containing ICBMs
- -- trading in older ICBM and SLBM launchers for modern SLBM launchers once the established baseline is exceeded
- -- modernizing G-class submarines and counting them within the 950 SLBM ceiling.

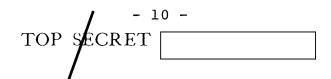
If exercised, some of these options, however, would require tradeoffs between weapon systems.

### Nonlimited Activity

The SALT I agreements allow for ongoing programs in all major elements of Soviet strategic offensive and defensive forces. On the offensive side, provision is made for modernizing the ICBM forces of the SRF, construction can continue on ballistic missile submarines of the Navy within the established ceiling, and no restrictions were placed on strategic bomber developments in Long Range Aviation. Modernization of the Soviet ABM system, within limits, is also allowed.

Rece	nt evidence			
	indicates that the Soviets are in nning a number of qualitative improvements  ICBM force. These improvements include the			
identified testing of new or highly modified ICBM systems and an ICBM silo-hardening program for increase				
survivab	ility.			
	indicated that the Soviets had one or perhaps			

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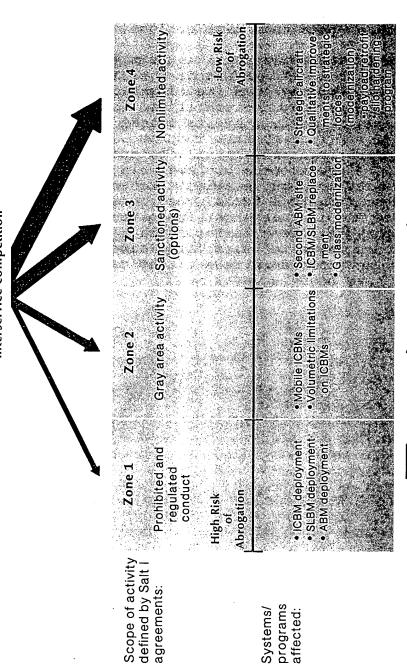
two missiles under development as replacements for the SS-11, and suggested that the work on them was further advanced than mere design.

one of the replacement systems is the MRV variant of the ss-II (MOG 3) which has probably completed its flight test program and could be ready for operational service. The other system could be in its flight test stage at Tyuratam where it appears that two, or possibly three, new liquid-propellant missile systems are under development. These systems probably are being developed for the new more survivable silos which employ improved construction techniques. One (possibly two) of these missiles is about the size of the SS-II while the other is a larger missile in the SS-9 class. The launch phase tests of these missiles have already taken place, and downrange flight testing of the smaller missile may have begun as well.

# SALT Framework for Soviet Decisionmaking

## **Bureaucratic Factors Influencing Decisions**

- Group interests
  Bargaining
  Interservice competition



Political Factors Influencing Decisions

Note: Size of arrows indicates relative degree of influence

- Direct control of weapons decisions
- by political leadership
   Monitoring of research and development by political leadership

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### The New SALT Framework: Models and Hypotheses

The range of conduct defined by the SALT agreements can be conceptualized as a continuum comprising four decisional zones, each of which relates to specific weapon systems and issues discussed at the negotiations. (See diagram at left.)

According to this conceptual scheme:

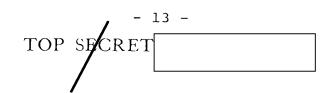
- -- Moving from the high risk zone of prohibited conduct toward the opposite end of the continuum, the impact that decisions will have on the viability of the agreements is reduced.
- -- Factors affecting the decisionmaking process will vary from zone to zone.

The effects of the four zones on Soviet behavior and decisionmaking are detailed in the following sections.

### Zone 1. Restricted Activity

The zone of restricted activity is defined by the formal prohibitions and regulations which the SALT I agreements have placed on the further growth of Soviet ABM, ICBM, and SLBM programs. A violation in this zone would signal a Soviet intent not to comply with the terms of the agreements, implying that they had decided to abrogate. Such activity would include:

- -- new Soviet ICBM silo starts
- -- an increase in the Soviet heavy missile force by emplacement of SS-9s or missiles of similar volume into modernized SS-11 or SS-7 silos
- -- production and deployment of modern ballistic missile submarines beyond the ceiling of 62 units

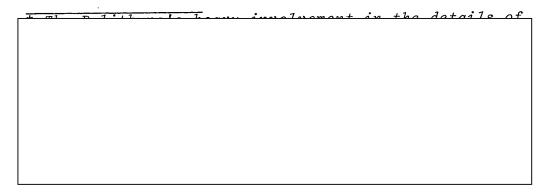


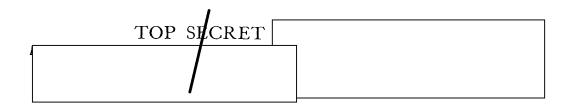
- -- ABM deployment at a third site
- -- transfer of ABM components to an East European nation
- -- interference with national technical means of verification.

The greatest infusion of political influence into the Soviet defense planning process will occur in this zone, primarily because the SALT I agreements, which are an important element of the Soviet Union's policy of detente toward the West, have enhanced the integration of military and foreign policy. Consequently, proposals for military programs directly violating the terms of the SALT agreements will be strongly inhibited and decisions to pursue them would be made at the highest level of political authority—the Politburo.\*

In this connection, it is likely that, through the process of negotiation and ratification, powerful pressures for compliance will have been generated within the Soviet governmental, party, and military bureaucracies by the time the agreements have entered into force.

These pressures would include a broad consensus in support of the agreements, developed through compromise and concessions. Soviet efforts at consensusbuilding were reflected in the composition of the Soviet delegation, which appeared to give representation at the negotiations to those interests directly





affected by the outcome of SALT. This consensus, however, was not easily arrived at and probably was based, at least in part, on assurances given to skeptical elements that SALT would not result in a decline in the Soviet strategic position.

Compliance will be reinforced by the political commitment of the Soviet leadership to the success of the accords. This would be particularly true in the case of Party General Secretary Brezhnev, who has publicly been identified with SALT. These men will have a strong incentive to enforce strict compliance with the terms of the agreements, especially in the early stages when precedence and practice are being established.

Available evidence on whether or not the Soviets will strictly comply with SALT I agreements is scanty and somewhat contradictory. In a recent development,

leaving the Soviets with 15 completed ABM R&D launchers--the number they are permitted by the ABM treaty.

A decision by the Soviet government to violate or abrogate the agreements, however, would probably be preceded by lengthy and difficult negotiations to establish a new consensus among interested bureaucratic groups. Moreover, this decision would be governed principally by political considerations rather than technical or military ones and most likely would result from a far-reaching realignment of Soviet foreign policy.

At lower levels of the bureaucracy, the constraints imposed by the agreements have assumed the force of law following a Council of Ministers directive in June 1972 ordering all affected Soviet agencies to comply with them. This, in turn, may foster a psychology of inaction which would inhibit any overt behavior jeopardizing the viability of the agreements.

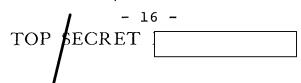
### Zone 2. 'Gray Area' of Activity

The 'gray area' includes activity which, although not specifically limited by the agreements, represents contentious issues not yet resolved through negotiation. Should the Soviets engage in these activities, it would not necessarily imply their intent to abrogate, but would represent behavior not consistent with the spirit of the agreements and presenting some potential risk to their viability.

The initiation by the Soviets of a large-scale development and deployment program for mobile ICBMs, although technically not barred by the interim agreement, would carry with it a high risk that the SALT agreements would collapse. Similarly, the development and deployment of a missile significantly larger in volume than the SS-11 could involve the same kind of risk.

Because of the vested interest of the political leadership in the success of the agreements, it can be expected to impose tighter political control over the management of Soviet military research and development on new strategic weapon systems. This would ensure that decisions on weapons programs that might be potentially sensitive because of the agreements are approved and monitored at high levels of political authority—by the Defense Council or perhaps the Politburo—rather than handled as matters of organizational routine.

The foundation for increased political control of military R&D management may have been laid in October 1970 when Colonel General N. N. Alekseyev was identified as a deputy minister of defense. Until his appointment, Alekseyev was believed to be the second-ranking officer in the Scientific and Technical Committee of the General Staff, a body concerned with weapons research. Although his exact responsibilities as a deputy defense minister are not known, his extensive background in weap-



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ons R&D suggests that his present position resembles that held in the early Sixties by Colonel General Gerasimov, who was Deputy Minister of Defense for New Technology and believed to be the top military overseer of weapons R&D. This position was abolished in 1963 and its responsibilities were incorporated into the General Staff.

The elevation of Alekseyev to the deputy minister level may have reflected the importance the Soviets attach to military R&D in an arms control environment-to provide hedges against a possible breakdown of the agreements--and also their recognition that certain weapons programs could be potentially sensitive because of SALT.

The prerogatives of the political leadership in defense program planning may be somewhat circumscribed by the bargains, concessions, and understandings that were struck with various groups during the negotiating and ratification process. The Soviet refusal to include mobile ICBMs in the interim agreement, for example, may have been determined to some extent by the Strategic Rocket Forces, which have an institutional interest and investment in the development of such mobile systems as the SS-14 and SS-X-15. During the period of SALT negotiations the SRF probably lobbied to protect this position.

The political leadership, in turn, may have deemed it necessary to hold open the option to develop mobile ICBMs in order to ensure the military's support for the SALT agreements. If so, the overall consensus for the agreements carried a price. While the leadership might feel it politically prudent to prohibit all work on mobile systems to avoid providing the US with any incentives to abrogate, it would probably be under pressure from various groups in the military to authorize some developmental work on mobiles.

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site 21 is being readied for some sort or new test program. If site 21 was, in fact, the launch point for these tests, its past association with the SS-X-15

bility that the Soviets are continuing to experiment with the mobile ICBM concept.

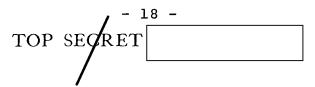
### Zone 3. Sanctioned Activity

While the SALT agreements strictly limit offensive and defensive deployments, they also provide Soviet planners with a number of options they can exercise. Decisions on these options will be less sensitive politically than those involving 'gray area' activity or prohibited conduct. Therefore, group interests will weigh more heavily in the decisionmaking process and, in this connection, interservice competition over the apportionment of strategic forces allowed under the agreements could be expected to come into play. This competition would probably center about the ICBM/SLBM replacement provisions.

If the Soviets were to opt for all 950 SLBMs allowed by the protocol to the interim agreement, as many as 210 land-based ICBMs might be dismantled or destroyed--one more than the total force of older SS-7 and SS-8 missiles. Of these launchers, 134 are located at vulnerable aboveground sites,\*\* making a trade for additional SLBMs attractive from the standpoint of survivability. This estimate assumes, however, that the Soviets choose their force posture on the basis of value-maximizing decisions, and ignores such other variables as service rivalries.

Recent studies\* have indicated that interservice rivalry is an important component of the Soviet mili-

<sup>\*\*</sup> Some of these sites are being dismantled. See footnote on page 6.



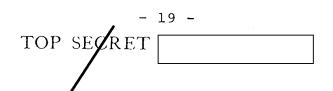
<sup>\*</sup> See particularly The Formation of the Soviet Strategic Rocket Forces: A Study of Interservice Rivalries, SR-IR 72-1, January 1972 (Top Secret [

tary policymaking process. Given the replacement provisions in the protocol, the Soviet Navy and SRF can be expected to compete vigorously with one another to have the eventual force mix resolved in its own favor. In this situation, the General Staff would probably be called upon to provide its recommendations, and these are likely to be based on factors such as cost-effectiveness, relative vulnerabilities, command and control implications, and strategic requirements. It is possible, however, that the resultant force structure will be as much a function of the institutional influence of the affected services as it is the result of decisionmaking based on objective considerations.

Another option which carries a potential for rivalry between competing interests involves the second ABM site allowed the Soviets for the protection of ICBMs. Although the Soviet leadership attempted to convey the impression at the Moscow summit that it would pursue those programs not specifically limited by the SALT I agreements, the evidence from the negotiating record on this issue is contradictory and suggests that the Soviets may have been undecided whether to develop and deploy an ABM system in defense of ICBMs.

defense was suggested
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The ABM treaty may now provide persuasive argumenta-
the rest clearly may now provide persuasive argumenta-
tion and legal justification for these interests.
Although it is not known for certain what arguments
these interests would advance for developing and
deploying such a system, they probably would include
some or all of the following:

- -- Deployment of an ABM system to defend ICBM silos would, at a minimum, preserve the image of equality established by the ABM agreement, especially since the US had insisted on such defenses for itself.
- -- It would present an opportunity to expand Soviet ABM technology by exper-



imenting with a new system concept and gaining operational experience in the field.

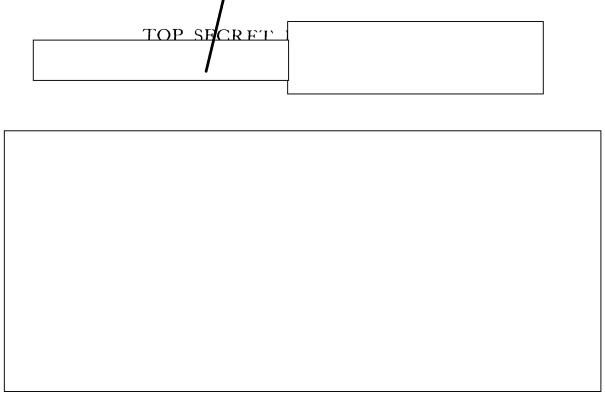
-- New options would be developed for use in case the agreements break down.

under development there at Complex F may eventually be intended for such a role. The system presently lacks hardened facilities and high acceleration missiles for terminal intercepts, but its projected launcher-radar ratio (6:1) correlates well with the launcher and radar restrictions for ICBM defense in Article III of the ABM treaty (100 launchers, 2 radars comparable to those being constructed at the Grand Forks Safeguard site, and 18 smaller radars).

On the other hand, evidence indicates that the Soviets were interested in deferring their second ABM site providing the US agreed to defer ABM deployment around Washington.

\*\* The US concept of hard site defense involves the defense of an area containing hardened facilities, such as ICBM silos, by an ABM system incorporating hardened radars and high-acceleration Sprint missiles which accomplish their intercepts at low altitudes.

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### Zone 4. Nonlimited Activity

Soviet activity may come to be concentrated in this area, with an emphasis on qualitative improvements. In planning for their forthcoming strategic weaponry, the Soviets will have strong incentives to keep pace with US technology and programs—particularly MIRV development—not only to avoid deterioration in their relative strategic position, but also to maintain a strong bargaining position for the second phase of the SALT negotiations.

These incentives, however, may be diminished by the prospects for comprehensive arms control agreements growing out of SALT which, together with the policy of detente and the 24th Party Congress resolution to "insure a substantial upswing in the people's material and cultural living standard," probably have strengthened the position of such interests as the economic managers who have long been arguing for a redirection of resources in favor of the consumer.

Whether SALT will have a measurable impact on the Soviet economy is not yet clear. At a minimum, the Soviets may plan to achieve some increases in productivity by redirecting technical resources into the civilian economy.

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### Conclusions

The foregoing model and hypotheses suggest that the SALT I agreements will influence Soviet defense planning by affecting the internal environment within which decisions on military policy and programs are made. This environment includes pressures for compliance which have been generated within the Soviet governmental, political, and military bureaucracies. The decisionmaking process is viewed as a differentiated one in which factors affecting the outcomes of decisions will vary according to what weapon systems and programs are involved.

According to this approach, certain decisions, because of their impact on the viability of the SALT I agreements, will be strictly controlled and monitored by the political leadership. Such decisions would include activities and programs directly violating the terms of the ABM treaty and interim agreement. Therefore, because of SALT, the political leadership may find itself involved to a greater degree in the details of military planning than previously was the case.

Other decisions involving less sensitive areas, such as specifically sanctioned activity and nonlimited activity, probably will be more affected by group interests and bargaining. If this is the case, Soviet decisions with regard to sanctioned and nonlimited activity would be less predictable than decisions to engage in prohibited or 'gray area' activity.

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